

What is claimed is:

1. An image processing method, comprising the steps of:
capturing digital image data of a photographing scene
in which a subject is photographed with a camera, as well as,
capturing camera information of said photographing
scene acquired or input in the camera when said subject is
photographed; or
optionally obtaining related information related to
said photographing scene based on at least one of said captured
digital image data of said photographing scene and said
captured camera information thereof;
assuming said photographing scene by at least one of said
camera information and said related information or [by a
combination with said digital image data and said at least
one of said camera information and said related information]
and
subjecting preset image processing to said digital image
data depending on said assumed photographing scene.

2. The image processing method according to claim 1,
wherein
said camera information of said photographing scene
includes photographing information and photographing

position information captured in said camera,

said related information includes supplementary information relating to the camera information,

said assuming step of the photographing scene is a step of specifying said subject in said photographing scene or assuming a photographing situation when said subject is photographed from said camera information and said supplementary information, and

said preset image processing is image processing depending on said specified subject or said assumed situation.

3. The image processing method according to claim 2, wherein said supplementary information includes map information.

4. The image processing method according to claim 2, wherein said photographing information includes information on photographing date and time and said supplementary information includes weather information, and wherein a situation of said photographing scene is assumed by specifying weather in a photographing location at the time of photographing from the information on photographing date and time and the photographing position information in said camera information, as well as the weather information in said

supplementary information.

5. The image processing method according to claim 2, wherein said photographing information includes information on photographing date and time and said supplementary information includes event information, and a situation of said photographing scene is assumed by specifying an event in a photographing location at the time of photographing from the information on photographing date and time and the photographing position information in said camera information, as well as the event information in said supplementary information.

6. The image processing method according to claim 2, at least one of gradation control of density or color, geometrical distortion correction, and emphasizing or smoothing processing is executed in an entire region of a photographed image of one frame, or a region limited to said specified subject as said preset image processing.

7. The image processing method according to claim 1, wherein said related information includes map information and/or accumulated images,
said camera information of said photographing scene

٩٤

includes at least one of photographing position information or photographing direction information and photographing magnification information captured in said camera,

said assuming step of the photographing scene comprises
the steps of:

preparing a simulation image of said photographing scene using said camera information and said map information or said accumulated images;

comparing said prepared simulation image with a photographed image of said photographing scene; and

detecting a defective region or an unnecessary region in said photographed image of said photographing scene, and

said preset image processing step comprises a step of subjecting restoration processing to said defective region or said unnecessary region in said photographing image.

6. The image processing method according to claim 7,
wherein said detecting step of said defective region or said
unnecessary region is for determining a line or a point
existing in said photographed image that does not match said
simulation image as a result of comparing said simulation
image with said photographed image; and

said restoring processing step is for restoring and

erasing the determined line or point using corresponding pixels in said simulation image, or corresponding pixels or marginal pixels in said photographed image.

9. The image processing method according to claim 7, wherein said comparing step for comparing said simulation image with said photographed image is for comparing distribution of density and color or distribution of sharpness in a preset region within a picture of said photographing scene, between said simulation image and said photographed image;

said detecting step of said defective region or said unnecessary region is for detecting distortion in said distribution of density or color or said distribution of sharpness in said preset region; and

said restoring processing step is for correcting unevenness or unsharpness with respect to said preset region.

10. The image processing method according to claim 7, wherein said comparing step for comparing said simulation image and said photographed image is for dividing an entirety of a picture of said photographing scene into a plurality of sub-regions, and comparing distribution of density or color or distribution of sharpness for each of said plurality of sub-regions, between said simulation image and said

photographed image;

said detecting step of said defective region or said unnecessary region is for detecting a sub-region in which said distribution of density and color or said distribution of sharpness has distortion out of said plurality of sub-regions; and

said restoring processing step is for correcting unevenness or unsharpness with respect to said region in which said distribution has distortion.

11. The image processing method according to claim 7, wherein said detecting step of said defective region or said unnecessary region is for deriving a region of a specific construction in said simulation image;

said comparing step of said simulation image with said photographed image is for setting a region that is the same as the region of said specific construction derived in said simulation image in said photographed image; and

said restoring processing step is for performing processing for removing said specific construction from the same region set in said photographed image.

12. The image processing method according to claim 1, wherein said camera information of said photographing scene

includes message information relating to said photographing scene, acquired or input in said camera and assigned to said digital image data,

 said assuming step of the photographing scene is a step of assuming the photographing scene from contents of said message information; and

 said preset image processing step is a step of subjecting image processing by means of image processing conditions set in accordance with the assumed photographing scene.

13. The image processing method according to claim 12, wherein said message information is at least one of audio information and text information.

14. The image processing method according to claim 12, wherein said photographing scene is assumed by combining either of photographing information at the time of photographing, an image characteristics amount or principal subject information with said message information.

15. The image processing method according to claim 1, wherein said processed image data obtained by subjecting said preset image processing to said digital image data is converted to at least one of print output image data outputted

96

to a printer producing a print, media output image data utilized in recording to and reproducing from a image data recording medium and communication image data utilized in communicating via a communication device, and is output.

16. The image processing method according to claim 15,
wherein subject-related information is derived from a
database by means of the subject assumed from said camera
information and said related information and utilized as at
least one of additional information for compositing at the
time of producing the print, additional information for
reproducing at the time of reproducing on the image data
recording medium and additional information for reproducing
at the time of reproducing after receiving via the
communication device.

17. An image processing apparatus, comprising:
an image data capturing device which captures digital
image data of a photographed image in a camera capable of
obtaining said photographed image of a photographing scene
in which a subject is photographed, as well as, acquiring or
inputting camera information of said photographing scene when
said subject is photographed;
a camera information capturing device which captures

said camera information of said photographing scene acquired and input in the camera;

an assuming device which assumes said photographing scene by said camera information or by a combination with said digital image data and said camera information; and

an image processing device which subjects preset image processing to said digital image data depending on said assumed photographing scene.

18. The image processing apparatus according to claim 17, further comprising:

a database which stores related information related to said digital image data of the photographing scene and said camera information; and

an obtaining device which obtains said related information related to said photographing scene and acquired or input in the camera, or stored in said database, based on said digital image data of said photographing scene and said captured camera information thereof; wherein

said assuming device assumes said photographing scene by said related information of the photographing scene or by a combination with said related information and at least one of said camera information and said digital image data.

100

19. The image processing apparatus according to claim 18, wherein

said camera information capturing device captures photographing information and photographing position information captured in said camera as said camera information of said photographing scene,

said obtaining device which obtains supplementary information relating to the camera information as said related information,

said assuming device specifies said subject in said photographing scene or assumes a photographing situation when said subject is photographed from said camera information and said supplementary information, and

said image processing device subjects image processing depending on said specified subject or said assumed situation as said preset image processing.

20. The image processing apparatus according to claim 19, wherein said supplementary information includes map information.

21. The image processing apparatus according to claim 19, wherein said photographing information includes information on photographing date and time and said

101

supplementary information includes weather information, and
said assuming device assumes a situation of said
photographing scene by specifying weather in a photographing
location at the time of photographing from the information
on photographing date and time and the photographing position
information in said camera information, as well as the weather
information in said supplementary information.

22. The image processing apparatus according to claim
19, wherein said photographing information includes
information on photographing date and time and said
supplementary information includes event information, and

said assuming device assumes a situation of said
photographing scene by specifying an event in a photographing
location at the time of photographing from the information
on photographing date and time and the photographing position
information in said camera information, as well as the event
information in said supplementary information.

23. The image processing apparatus according to claim 19, wherein said image processing device executes at least one of gradation control of density or color, geometrical distortion correction, and emphasizing or smoothing processing in an entire region of a photographed image of one

102

frame, or a region limited to said specified subject as said preset image processing.

24. The image processing apparatus according to claim 18, wherein

said obtaining device obtains map information and/or accumulated images related to said camera information as said related information,

said camera information capturing device captures at least one of photographing position information or photographing direction information and photographing magnification information captured in said camera as said camera information of said photographing scene,

said assuming device comprises:

a preparing device which prepares a simulation image of said photographing scene using said camera information and said map information or said accumulated images;

a comparing device which compares said simulation image prepared by said preparing device with a photographed image of said photographing scene; and

a detecting device which detects a defective region or an unnecessary region in said photographed image of said photographing scene, and

said image processing device comprises a restoration processing device which subjects restoration processing to said defective region or said unnecessary region in said photographing image as said preset image processing.

25. The image processing apparatus according to claim 24, wherein said detecting device determines a line or a point existing in said photographed image that does not match said simulation image as a result of comparing said simulation image with said photographed image; and

 said restoring processing device restores and erases the determined line or point using corresponding pixels in said simulation image, or corresponding pixels or marginal pixels in said photographed image.

26. The image processing apparatus according to claim 24, wherein said comparing device compares distribution of density and color or distribution of sharpness in a preset region within a picture of said photographing scene, between said simulation image and said photographed image;

 said detecting device detects distortion in said distribution of density or color or said distribution of sharpness in said preset region; and

 said restoring processing device corrects unevenness or

unsharpness with respect to said preset region.

27. The image processing apparatus according to claim 24, wherein said comparing device divides an entirety of a picture of said photographing scene into a plurality of sub-regions, and compares distribution of density or color or distribution of sharpness for each of said plurality of sub-regions, between said simulation image and said photographed image;

said detecting device detects a sub-region in which said distribution of density and color or said distribution of sharpness has distortion out of said plurality of sub-regions; and

said restoring processing device corrects unevenness or unsharpness with respect to said region in which said distribution has distortion.

28. The image processing apparatus according to claim 24, wherein said detecting device derives a region of a specific construction in said simulation image;

said comparing device sets a region that is the same as the region of said specific construction derived in said simulation image in said photographed image; and

said restoring processing device performs processing

10 (3)

for removing said specific construction from the same region set in said photographed image.

29. The image processing apparatus according to claim
17, wherein

said camera information capturing device captures message information relating to said photographing scene, acquired or input in said camera and assigned to said digital image data,

said assuming device assumes the photographing scene from contents of said message information; and

said image processing device subjects image processing by means of image processing conditions set in accordance with the assumed photographing scene.

30. The image processing apparatus according to claim 29, wherein said message information is at least one of audio information and text information.

31. The image processing apparatus according to claim 29, wherein said assuming device assumes said photographing scene by combining either of photographing information at the time of photographing, an image characteristics amount or principal subject information with said message information.

106

32. The image processing apparatus according to claim 17, further comprising;

a converting device which converts said processed image data obtained by subjecting said preset image processing to said digital image data to at least one of print output image data outputted to a printer producing a print, media output image data utilized in recording to and reproducing from a image data recording medium and communication image data utilized in communicating via a communication device, and is output.

33. The image processing apparatus according to claim 18, further comprising;

a converting device which converts said processed image data obtained by subjecting said preset image processing to said digital image data to at least one of print output image data outputted to a printer producing a print, media output image data utilized in recording to and reproducing from a image data recording medium and communication image data utilized in communicating via a communication device, and is output.

34. The image processing apparatus according to claim

107

33, wherein said obtaining device derives subject-related information from said database by means of the subject assumed from said camera information and said related information by said assuming device,

said apparatus further comprising an information adding device which adds said subject-related information derived by said obtaining device, based on said converted image data by said converting device, as at least one of additional information for compositing at the time of producing the print, additional information for reproducing at the time of reproducing on the image data recording medium and additional information for reproducing at the time of reproducing after receiving via the communication device.